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Article: Consolidation of Four Flaking Gelatin Glass Plate Negatives from the University of Colorado (Abstract)

Author(s): Ronel Namde

*Topics in Photographic Preservation, Volume 16.*

Pages: 257-258

Compiler: Jessica Keister

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## **Consolidation of Four Flaking Gelatin Glass Plate Negatives from the University of Colorado**

**Ronel Namde**

*Presented at the 2015 PMG Winter Meeting in Cambridge, Massachusetts.*

Challenges associated with the safe and effective consolidation of flaking gelatin emulsions from glass plate negatives are recurrent. This presentation will focus on the investigation and treatment of four glass plate negatives from the late-nineteenth/early-twentieth century, owned by the University Libraries, University of Colorado Boulder. These negatives were sent to the Winterthur/University of Delaware Program in Art Conservation (WUDPAC) for examination and stabilization with the goal of developing a treatment protocol that could be successfully applied to the larger collection. The plates were treated intermittently over nine months by two graduate students, Shannon Brogdon-Grantham and Ronel Namde.

The plates are from a collection of 1,576 images by Lachlan McLean (1843-1929), a commercial photographer known for his photographs of miners in the Clear Creek Valley, Colorado. McLean is especially famous for numerous images taken inside mines using flash powder (Smith 1980). Included in the University of Colorado collection is a group of 66 oversized glass plates with an average size of 18 x 22 inches, commonly referred to as mammoth plates. The collection is of great importance to the University as they represent rare depictions of Colorado mining from the second gold rush (c.1859), a particularly significant period in Colorado history.

The four gelatin glass negatives were created on smooth, hand-blown glass, with image tonalities that range from caramel-brown to grey-brown. Despite initially appearing to be collodion plates, analysis with Fourier transform infrared spectroscopy (FTIR) confirmed the plates were gelatin, likely uncoated. The plates were selected for examination and treatment because they exhibited forms of degradation and flaking emulsion representative of the larger collection, from large half-moon-shaped flakes to small scroll-shaped losses. Additionally, two of the plates were broken into two pieces. Three of the plates suffered from minor water damage, while one had severe water damage, including a partially dissolved emulsion layer over one third of the plate.

Following in-depth experimentation and study, Aquazol<sup>®</sup> 200 in isopropanol was used for the consolidation of the University of Colorado plates. Aquazol has been previously used for consolidating flaking reverse glass paintings with success (Jordan 2001). The author also consulted with photograph conservator Greta Glaser, who had extensive experience treating flaking glass plates using Aquazol 200 while at the Library of Congress and Smithsonian Institution Archives during her third year of study at WUDPAC. Varying concentrations of Aquazol in isopropanol with small percentages of water were tested, as were various methods for delivering the consolidant, including preceding consolidation with an application of isopropanol and applying the consolidant with brushes and through glass capillary tubes. Different drying methods were also explored, as was the selective application of heat to thermoplastically reactivate the consolidant.

The consolidation was generally successful in securing the lifting emulsion. Larger flakes frequently did not adhere well overall or remain flat, and it was more difficult to feed consolidant under small emulsion curls. In these cases, concentrations of Aquazol and isopropanol were varied and minor adjustments were made to improve adhesion.

The lessons of this investigation will be summarized, areas of further inquiry will be discussed, and the feasibility of this and similar treatment protocols for a larger collection of flaking gelatin glass plate negatives will be considered.

**References**

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**Ronel Namde**

Photograph Conservator  
National Gallery of Art, Washington, DC

Papers presented in *Topics in Photographic Preservation, Volume Sixteen* have not undergone a formal process of peer review.